

3.1 Binomial Theorem

Name _____ Date _____ Period _____

Expand the binomial using a calculator to find the binomial coefficients.

1. $(a+b)^4$

2. $(x+y)^7$

Expand the binomial using Pascal's Triangle to find the coefficients.

3. $(x+y)^3$

4. $(p+q)^8$

Evaluate the expression by hand (using the formula) before checking your answer on a grapher. Show work!

5. $\binom{9}{2}$

6. $\binom{166}{166}$

Find the coefficient of the given term in the binomial expansion.

7. $x^{11}y^3$ term, $(x+y)^{14}$

8. x^4 term, $(x-2)^{12}$

Use the Binomial Theorem to find a polynomial expansion for the function.

9. $f(x) = (x-2)^5$

10. $h(x) = (2x-1)^7$

Use the Binomial Theorem to expand each expression.

11. $(2x + y)^4$

12. $(\sqrt{x} - \sqrt{y})^6$

13. $(x^{-2} + 3)^5$

14. Determine the largest integer n for which your calculator will compute $n!$.